

1 **(December 2, 2002)**

2 **Precast Reinforced Concrete Three Sided Structures**

3 For three sided structures, the Contractor shall submit two sets of design  
4 calculations to the Bridge and Structures Engineer with the eight sets of shop  
5 drawings submitted for the Engineer's approval.  
6

7 The Contractor shall affirm with the design calculations submitted with the shop  
8 drawings for the Engineer's approval, that the three sided structure conforms to the  
9 specified design criteria. The design calculations shall include, but not be limited  
10 to, analysis of the following elements:

- 11
- 12 1. Flexure (substructure and superstructure).
  - 13 2. Compression in the walls.
  - 14 3. Shear (substructure and superstructure).
  - 15 4. Design footing bearing pressure versus allowable soil bearing pressure.
  - 16 5. Deflection.
  - 17 6. Minimum and maximum reinforcement ratios.
  - 18 7. Distribution of flexural reinforcement.
  - 19 8. Fatigue.
  - 20 9. Live load distribution.
- 21

22 For three sided structures, in addition to items 1 through 6 under shop drawing  
23 content requirements, the following shop drawing details shall be submitted:

- 24
- 25 1. Footing and slab base details.
  - 26 2. Wingwall and cutoff wall details.
  - 27 3. Erection and backfill procedure.
  - 28 4. Complete, site specific, itemized bar list for all steel reinforcement.
- 29

30 All design calculations and shop drawings for the precast reinforced concrete three  
31 sided structures shall be stamped and signed by a Professional Engineer in  
32 accordance with Section 6-01.9.